

הנדך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ה' 17.01.2019
(יא' בשבט, תשע"ט), בניין דן קאהן, אודיטוריום 1, 13:30.

מרצה: פיליפ אוחמן

מנחה: פרופ' יעקב בן חיים

על הנושא:

An Info-Gap Approach to Crack Tip Plastic Zone Shapes

The seminar will be given in Hebrew

תקציר ההרצאה:

This work focuses on providing the theoretical background and practical tools for solving fracture mechanics problems in which there is uncertainty regarding one or more of the properties of the systems involved.

Info-gap theory provides the engineer with a decision support tool when a performance and requirements-based choice has to be made between a number of alternatives. The decision in that case, according to the methodology which is developed and applied in this work, should be conducted using the "Robustness". The use of the robustness concept as a decision criterion is suggested in this work based on the notion that considering nominal performance values only, in an uncertain environment, can't provide an accurate basis for decision. Rather, one must decide under conditions of uncertainty by considering how much each alternative is robust to the existing uncertainties.

A major topic covered in this work is "Preference Reversal". When one alternative has better nominal performance while the other is better researched and tried out, we face a possible "Innovation Dilemma". It depicts a case where there is a requirement value for which the robustness of both alternatives is equal. However, for smaller requirement values one alternative has a greater robustness, and for larger requirement values the other alternative has the greater robustness. Thus, the preference will alter accordingly.

The theoretical development of the preference-reversal concept is applied practically as well in the vast majority of the examples. Another practical application of the engineering use of the robustness concept that is demonstrated in this work discusses the conditions and probabilities of system failure, as the uncertainty in a system variable manifests itself into the calculation of the failure probability.

Finally, a practical method of assigning a numerical value to the error of the estimate of an unknown system variable is suggested.

בברכה,

ד"ר אורי סאס

מרכז הסמינרים